

**TWO UROTHRIPIDÆ (THYSANOPTERA) FROM  
FLORIDA, WITH KEYS TO THE KNOWN  
GENERA AND THE NORTH AMER-  
ICAN SPECIES.**

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Professor J. R. Watson has sent me recently some very interesting Urothripidæ collected by several of his associates at the University of Florida and the Florida Agricultural Experiment Stations. One of the species is represented by a considerable series from various localities within the state, and is apparently generically as well as specifically new. The other is less numerous in the collections, and is a species described in 1925 by Mr. C. B. Williams and myself from the West Indies; its occurrence in tropical United States had been expected. Both, then, are additions to the North American list; and representing as they do one of the smallest and most obscure families of the Thysanoptera—a family unknown from the New World until little more than four years ago—it has been thought worth while to include keys to the genera of the world and to the three North American species.

SUPERFAMILY UROTHRIPIDEA.

1912. (April 13). ["A new suborder"] Hood, Proc. Biol. Soc. Wash., Vol. XXV, p. 64.
1912. (August). [Suborder] *Polystigmata* Bagnall, Ann. Mag. Nat. Hist., Ser 8, Vol. 10, p. 220.
1915. Superfamily *Urothripoidea* Hood, Proc. Biol. Soc. Wash., Vol. XXVIII, p. 59.
- 1927: Superfamily *Urothripoidea* Hood, Ann. Ent. Soc. Amer., Vol. XX, p. 2.

The Urothripoidea are a compact and easily recognizable group of Thysanoptera. Two misobservations have led, however, to an exaggerated belief in their distinctness: They do not have eleven stigmata and the maxillary palpi are not one-segmented. The number of stigmata is four, which is typical of the entire order, while the number of segments in the maxillary palpi is the same

as in all other Tubulifera, i.e., *two*, as has previously, but not conspicuously, been stated.<sup>1</sup>

If we recognize the group as a superfamily or family, we must seek content in a meagre assortment of differences, of which only one is positive and possessed by no other Tubulifera. Perhaps additional characters may in time be found; but at present the only important one is the distance between the coxæ of the hind pair, this distance being greater than that separating either of the others. In the rest of the Tubulifera the middle coxæ are the most widely separated, due merely to the greater development of the mesothorax, which bears in winged species the larger and more powerful fore wings. The apterous condition of the urothripids is apparently so ancient as to have caused a great reduction in the size of the thorax, the mesothoracic coxæ inevitably coming closer together, but the hind coxæ remaining or becoming widely separated because of the necessity for supporting the long heavy abdomen, with the particularly long hairs at its tip.

The sculpture of the body surface is distinctive, to be sure, and furnishes a secondary character of real value; but this difference is not convincingly fundamental, any more than is the apparently invariable absence of wings (wings are lacking in many other Thysanoptera), or the reduction in the number of segments in the antennæ (species of other families have as few antennal segments as some of the urothripids), or the longer hairs at the tip of the abdomen (*Karnyothrips*, a phlæothripid, has hairs nearly as long).

In almost every group of insects the immature stages furnish valuable clues to relationships; and it must be disappointing to those who apparently believe in raising all of the overly numerous families of the order to superfamily rank, to find that the urothripoid nymph indicates a close relationship, indeed, to the phlæothripoids, as a study of the last three figures on the plate accompanying this paper will show.

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<sup>1</sup> Hood, Ann. Ent. Soc. Amer., Vol. XX, p. 2 (line 7 from bottom); 1927. See also figure 3 of the plate accompanying the present paper, in which is shown the small basal segment which has quite generally been overlooked.

FAMILY UROTHRIPIDÆ.

1909. *Urothripidæ*, Bagnall, Ann. Mus. Nat. Hung., Vol. VII, p. 126.  
 1910. *Urothripidæ*, Bagnall, Fauna Hawaiiensis, Vol. III, Pl. VI, p. 677.  
 1911. *Urothripidæ*, Bagnall, Ier Congs. Int. d'Ent., p. 283.  
 1912. *Urothripidæ*, Trybom, Arkiv f. Zool., Bd. 7, No. 33, p. 31.  
 1915. *Urothripidæ*, Hood, Proc. Biol. Soc. Wash., Vol. XXVIII, pp. 54, 59.  
 1927. *Urothripidæ*, Hood, Ann. Ent. Soc. Amer., Vol. XX, p. 3.

KEY TO GENERA.

I—Antennæ 7-segmented.

- a. Vertex of head without prominent bristles; antennal segments 3-5 about as wide as long; tube much shorter than head, relatively stout, three to five times as long as greatest width, with six long hairs at tip. Ethiopian.....*Urothrips* Bagnall.  
 aa. Vertex of head with a pair of prominent, anteriorly-directed bristles; antennal segments 3-5 decidedly longer than wide; tube much longer than head, very slender, fully ten times as long as greatest width; with four long hairs at tip. Neotropical  
*Bradythrips* Hood and Williams.

II—Antennæ either 4- or 5-segmented.

b. Antennæ 5-segmented.

- c. Vertex of head without prominent bristles; antennal segments 4 and 5 not closely united, 5 pedicellate.  
 d. Head as broad as long; fore tarsi apparently unarmed; tenth abdominal segment much longer than ninth, which is only slightly longer than eighth; tip of abdomen with four long hairs. Palæartic.....*Bebelothrips* Buffa.

- dd. Head decidedly longer than broad; fore tarsi with a prominent, curved, claw-like structure on the outer surface; tenth abdominal segment subequal in length to ninth, which is about twice as long as eighth; tip of abdomen with six long hairs. Nearctic...*Trachythrips* Hood.

cc. Vertex of head with 4 to 6 prominent bristles, borne on conspicuous tubercles; antennal segments 4 and 5 compactly united, 5 conical, not at all pedicellate; ninth abdominal segment fully twice as long as eighth; tip of abdomen with six long hairs. Nearctic, Neotropical, and Ethiopian.

*Stephanothrips* Trybom.

bb. Antennæ 4-segmented; tip of abdomen with four long hairs. Palæarctic. . . . . *Amphibolothrips* Buffa.

**Trachythrips** gen. nov.

(τραχύς, rough; θρψ.)

Antennæ five-segmented; segments 4 and 5 not closely united, 5 pedicellate. Head decidedly longer than broad; vertex without prominent bristles. Fore-tarsi with a prominent, curved, claw-like structure on the outer surface. Abdomen with tenth segment subequal in length to ninth, which is about twice as long as eighth; tip of abdomen with six long hairs.

*Genotype: Trachythrips watsoni* sp. nov., from Florida.

This genus is no doubt closely related to *Bebelothrips* Buffa, to which belongs only one species, known from three specimens taken more than twenty years ago on the island of Giglio, off the western coast of Italy. Buffa's description and figures<sup>1</sup> are of a much broader insect, with the tenth abdominal segment much longer than the ninth (which is only slightly longer than the eighth) and with four long hairs, instead of six, at the tip of the abdomen.

**Trachythrips watsoni** sp. nov. (Pl. XXIX, figs. 1-9.)

*Female* (apterous).—Length about 1.2 mm. Color straw yellow, with head, prothorax, mesothorax, fore legs, and extreme tip of tube, dark brown; abdominal segments 2-8 each with a pair of round dorso-lateral pale-brown spots smaller than the first antennal segment; median line of abdomen faintly indicated by a series of light gray blotches; antennæ straw yellow, shaded with brown distally; tarsi with the usual

<sup>1</sup> Boll. Lab. Zool. R. Scuola Sup. Agr., Portici, Vol. III, pp. 195 and 196; 1909.

darkened tip; ninth segment of abdomen narrowly darkened with brown along lateral surface; subhypodermal pigmentation of two kinds, i.e., bright crimson and white; the former generally distributed in the head and thorax (but more abundant at sides and along front margin of prothorax), underlying the dorso-lateral abdominal spots, and sparsely distributed in legs and beneath the faint median abdominal blotches; the white pigmentation opaque, conspicuous when observed by reflected light, forming a broad band across metathorax and disposed in two series of blotches on abdominal segments 1-6, one such series lying along the extreme lateral margin external to the brown spots and to the crimson pigmentation, the other just laterad of the median line.

Head about 1.2 times as long as wide, broadest at about one-fourth from base; occiput somewhat elevated, with an intricate pattern of anastomosing lines; lateral surfaces and vertex strongly roughened with tubercles, some of them bearing short, pointed bristles; ventral surface smooth, except at sides where the tubercles of the lateral surfaces are continued onto it; vertex rounded in front of eyes but scarcely overhanging insertion of antennæ, without long bristles; postocular bristles wanting. Eyes minute, consisting of nine facets, one of which is situated close to the base of the antennæ and not visible from above, the remaining eight forming a loop which curves downward to the isolated facet and within which are about six bristle-bearing tubercles. Ocelli absent, as in all members of the family. Antennæ about 1.2 times as long as head, 5-segmented (see Plate XXIX, fig. 2, for form and chaetotaxy of segments); sense cones difficult to distinguish from setæ, but apparently four on segment 3 and one on segment 4.

Prothorax slightly more than half as long as head and (inclusive of coxæ) about 2.2 times as wide as median length of pronotum; pronotum broadly and shallowly impressed each side of median line; surface roughened with anastomosing lines on disk, tuberculate at sides (see Plate XXIX, fig. 1); no long prothoracic bristles. Pterothorax about 1.2 times as wide as prothorax, bearing a number of setigerous tubercles similar to those of head and pronotum; mesonotum with distinct anastomosing lines, at sides with a few small tubercles, and with a shallow circular impression each side of median line. Legs moderately stout; fore tarsi with a prominent, curved, claw-like structure on the outer surface.

Abdomen broadest at second segment and tapering evenly to base of tube; surface with anastomosing lines which are more distinct at sides of abdomen and which are prolonged posteriorly into minute setigerous asperities; posterior angles of intermediate tergites slightly produced and bearing a short, blunt bristle which is parallel to the axis of the body; ninth abdominal segment more than twice as long as eighth, surface with setigerous asperities. Tube about 0.7 as long as head and equal in length to ninth abdominal segment, form shown in Pl. XXIX, figs. 4 and 5; terminal hairs six in number, simple in structure, about four times as long as tube and half the total body length.

Measurements of holotype (♀): Length 1.19 mm.; head, length 0.187 mm.; greatest width 0.157 mm.; prothorax, length of pronotum 0.099 mm.; width (inclusive of coxæ) 0.217 mm.; pterothorax, width 0.259 mm.; interval between fore coxæ 0.119 mm., middle coxæ 0.100 mm., hind coxæ 0.123 mm.; abdomen, greatest width 0.281 mm.; segment 8, length 0.060 mm.; segment 9, length 0.136 mm.; segment 10, length 0.136 mm., width at middle 0.036 mm., at apex 0.024 mm.; terminal hairs, length 0.525 mm.

Antennal segments:	1	2	3	4	5
Length (μ).....	28	41	81	28	43
Width (μ).....	28	35	33	20	15
Total length of antenna 0.220 mm.					

*Male* (apterous).—Almost identical with female in color and structure, though smaller. Tarsi armed as in female.

Measurements of allotype (♂): Length 0.90 mm.; head, length 0.146 mm., greatest width 0.121 mm.; prothorax, length of pronotum 0.088 mm., width (inclusive of coxæ) 0.168 mm.; pterothorax, width 0.174 mm.; abdomen, greatest width 0.203 mm.; segment 8, length 0.052 mm.; segment 9, length 0.096 mm.; segment 10, length 0.090 mm., width at middle 0.029 mm., at apex 0.023 mm.; terminal hairs, length 0.435 mm.

Antennal segments:	1	2	3	4	5
Length (μ).....	24	36	76	24	44
Width (μ).....	34	30	32	20	14
Total length of antenna 0.204 mm.					

*Nymph*.—Color nearly white, with a slight yellowish cast and bright crimson subhypodermal pigmentation disposed in

blotches along sides of head, thorax, and abdominal segments 1-8 and also along the median line from a little behind the eyes to segment 9 of abdomen, the brain and optic nerves being more or less suffused; scattered blotches of chalky-white pigmentation (subopaque by transmitted light) scattered through the body; antennæ with a narrow ring at extreme base of segment 1, distal portion beyond middle of segment 4, and to some extent the sides of segment 3, brown; extreme tip of tube likewise brown.

Head, prothorax, fore legs, antennæ, and tip of abdomen (with its usual tremendously long single pair of hairs) shown in figures 7-9 on Plate XXIX.

Described from a splendid series of 24 females, 11 males, and 7 nymphs forwarded by Professor J. R. Watson, all collected in Florida, as follows:

FLORIDA: Villa Tasso (Okaloosa Co.), May 18, 1928. R. W. Blacklock. Among leaves of oak, hickory, and magnolia collected from ground. 14 ♀'s, 9 ♂'s, 7 nymphs.

Bellview, April, 1928. E. F. Grossman. Among dry pine and oak leaves. 1 ♀.

Gainesville, February, 1928. E. F. Grossman. Among dry, fallen citrus leaves. 2 ♀'s.

Illahaw, May 11, 1928. J. H. Henderson and E. F. Grossman. Among dry leaves. 2 ♀'s, 1 ♂.

Marion Co., April, 1928. E. F. Grossman. Among dead oak leaves. 1 ♀.

Mayo, February, 1928. E. F. Grossman. From dry leaves of Live Oak along barren roadside. 1 ♀.

Milligan, August 1, 1928. P. W. Calhoun. Among dead oak leaves. 1 ♀, 1 ♂.

St. Augustine, February, 1928. E. F. Grossman. Among dry leaves of Scrub Oak and Saw Palmetto. 2 ♀'s.

*Type locality:* Villa Tasso, Florida.

#### *Stephanothrips* Trybom.

1912. *Stephanothrips* Trybom, Arkiv f. Zool., Bd. 7, No. 33, p. 42.

1927. *Stephanothrips* Hood, Ann. Ent. Soc. Amer., Vol. XX, p. 6.

#### KEY TO SPECIES.

I—Vertex of head with *three* pairs of strong, anteriorly-directed bristles borne at the tips of tubercles; head distinctly nar-

rowed posteriorly; first segment of fore and hind tarsi with a strong, prominent, curved claw on outer surface. (St. Croix and Trinidad, West Indies; Florida.)

*S. occidentalis* Hood and Williams.

II—Vertex of head with *two* pairs of such bristles; fore and hind tarsi unarmed; head with cheeks parallel, not at all narrowed posteriorly.

a—Antennæ slender, segments 3 and 5 each about two and one-half times as long as wide; general color dark blackish brown (nearly black to the naked eye), head darkest. (California).

*S. bradleyi* Hood.

aa—Antennæ stouter, segments 3 and 5 each about two times as long as wide; general color grayish yellow, with head and anterior portion of prothorax brown. (Natal) . . . . . *S. buffai* Trybom.

*Stephanothrips occidentalis* Hood and Williams.

1925. *Stephanothrips occidentalis* Hood and Williams, Psyche, Vol. XXXII, p. 69.

1927. *Stephanothrips occidentalis* Hood, Ann. Ent. Soc. Amer., Vol. XX, p. 6; Pl. I and Pl. II, figs. 3-5.

It is of interest to add to the North American list this distinct little species, described originally from St. Croix and Trinidad in the West Indies. Professor Watson has sent me three specimens, all females, taken at Miami, Florida, in May, 1928, by G. F. Weber, among "dry leaves, mostly *Populus* (?) and *Ficus*, old U. S. P. I. Garden."

PLATE XXIX.

***Trachythrips watsoni* gen. et sp. nov.**

(J. D. H., camera lucida.)

1, head and prothorax, ♀, leg bristles omitted; 2, right antenna, ♀; 3, right maxillary palpus, ♀, ventral aspect; 4, segments 7-10 of abdomen, ♀; 5, segments 7-10 of abdomen, ♂; 6, tip of abdomen, ♂; 7, head and prothorax, nymph, probably in last instar; 8, right antenna, nymph; 9, segments 8-10 of abdomen, nymph.



